

A BARTERING PROTOCOL LANGUAGE

BACKGROUND OF THE INVENTION

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Field of the Invention

This invention relates to buying and selling items over a network, and more specifically to a system, method and program incorporating a bartering protocol language for specifying bartering features across different bartering systems.

Description of the Related Art

The Internet, initially referred to as a collection of "interconnected networks", is a set of computer networks, possibly dissimilar, joined together by means of gateways that handle data transfer and the conversion of messages from the sending network to the protocols used by the receiving network. When capitalized, the term "Internet" refers to the collection of networks and gateways that use the TCP/IP suite or protocols.

Currently, the most commonly employed method of transferring data over the Internet is to employ the World Wide Web environment, referred to herein as "the Web". Other Internet resources exist for transferring information, such as File Transfer Protocol (FTP) and Gopher, but have not achieved the popularity of the Web. In the Web

environment, servers and clients effect data transfer using the Hypertext Transfer Protocol (HTTP), a known protocol for handling the transfer of various data files (e.g., text, still graphic images, audio, motion video, etc.).

- 5 The Internet is widely used for many activities including commercial transactions, such as between retailers and end-users, auction sites, and bartering systems that enable the buying and selling of items amongst end-users. One such bartering system enables an end user to sell a
10 desired item owned by the user and to receive "barter" dollars provided by the bartering site; and to buy items owned by other users by using bartering dollars. The end user has an account with the bartering site that contains the barter dollars that can be used to buy and sell items.
15 This approach works well when a user performs all of the user's transactions, i.e., buying, selling, trading, within a same bartering site. However, if a user buys from one site, and sells items through another bartering site, the user must undertake two separate transactions. With such
20 multiple transactions, time delays may become an issue when crediting and debiting one or more user accounts.

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SUMMARY OF THE INVENTION

It is therefore an object of this invention to enable a bartering process to match items that a user would like to buy with items that others would like to sell, and to match
30 items that a user would like to sell with items that others

would like to buy; whereby one or more items that a user would like to buy are matched in terms of equivalency with one or more items that a user would like to sell, without necessarily utilizing an intermediate value mechanism such 5 as bartering dollars; thereby enabling the bartering process to be compatible across multiple bartering systems.

It is a further object of the invention to enable a user specified priority for items that the user would like 10 to buy and sell.

It is a further object of the invention to specify a range of near equivalency amongst non-identical barter items.

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It is a further object of the invention to enable a bartering process to match items that a user would like to buy with items that others would like to sell, and to match items that a user would like to sell with items that others 20 would like to buy; whereby the matching process occurs according to a priority assigned by the user to the items or choices.

It is a further object of this invention to enable a 25 bartering process to be compatible across multiple bartering sites.

A bartering protocol system of a preferred embodiment of the invention has a specification of a needs list and an 30 availability list for each of its members, i.e., users. The

needs list specifies the items that the user would like to acquire. The availability list specifies the items that the user is willing to make available to others for barter, trade, or purchase, especially in conjunction with acquiring

5 an item on the needs list. The system enables a user to specify a priority for individual items or groups of items in the needs list. The system, method and program of this invention enables a process for finding a match, based on a specified priority, for items on the needs list with items

10 that others may have for sell as indicated on the availability lists of others. Furthermore, the process matches items on the user's availability list with items that others may have a need for as indicated on the needs list of others.

15 The barter protocol language enables a specification of near equivalency between items that are desired to be bought and sold that will be satisfactory to the end user. The protocol language enables a user to specify the types of items that will suffice for, or be accepted in lieu of,

20 another item.

As such, the protocol language enables a user to prioritize their needs. An item that a user greatly needs to have may have a higher priority than an item that the user thinks would be nice to have, but does not necessarily 25 have to acquire. This prioritization may reflect a higher "price" in terms of real currency, barter dollars, or equivalently matched items, that the user is willing to pay for items that the user greatly desires or must have. As such, the scheme of prioritization in the barter protocol 30 language allows the ability to specify these priorities.

In the protocol language of the present invention, equivalency of dissimilar items can be specified, also. For example, a user desiring to acquire a certain make, model, and year of an automobile can specify a specific service or 5 skill that the user can provide, such as renovating a room in a home, as an available item that is equivalent to the needed item. If a user has a specific skill that the user wants to trade for a specific needed item, the protocol language of the present invention can provide for such a 10 match within a bartering site or across multiple bartering sites. The protocol language allows the specification of equivalence between dissimilar items without the necessity of reducing each item to a quantity of barter dollars. This allows a specification of a very clear and unambiguous 15 match.

More specifically, a preferred embodiment of the protocol language is written in XML. XML enables the creation of interdependencies between items. As such, the features of the XML protocol language include enabling a 20 specification of a needs list and an availability list, a specification of equivalency and near equivalency of items, a specification of equivalency of dissimilar items, a prioritization of requirements or needs, and an inter-translation between different protocol languages of 25 different bartering sites, i.e., allowing cross-bartering across different bartering systems where different bartering languages are bridged through a translator.

For a more complete understanding of the present invention and the advantages thereof, reference should be made to the following Detailed Description taken in connection with the accompanying drawings in which:

Fig. 1 depicts one embodiment of a computer system with which the method, system, and program of the present invention may be advantageously utilized;

Figs. 2A-2D illustrates an XML bartering protocol, of a preferred embodiment of the invention, having an availability list and a needs list in which choices for desired items are prioritized for exchange for an available item on the availability list, and the individual items on the needs list are further prioritized;

Figs. 2E-2G illustrate a different representation of the XML bartering protocol format of Figs. 2B-2D wherein the capability of translating the specification into different formats when bartering across bartering domains is illustrated in accordance with a preferred embodiment of the invention;

Fig. 3 is a flow diagram of the process and logic utilized in specifying an availability list and a needs list in accordance with a preferred embodiment of the invention; and

Fig. 4 is a flow diagram of the process and logic utilized in finding a match, if at all, for a user specified availability list and a user specified needs list in accordance with a preferred embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

5 In the following description, reference is made to the accompanying drawings which form a part hereof, and which illustrate several embodiments of the present invention. It is understood that other embodiments may be utilized and structural and operational changes may be made without
10 departing from the scope of the present invention.

The system of the present invention may be any one of a variety of systems, including a variety of computing systems and electronic devices under a number of different operating systems. In one embodiment of the present invention, the
15 computing system is a portable computing system such as a notebook computer, a palmtop computer, a personal digital assistant, a telephone or other electronic computing system that may also incorporate communications features that provide for telephony, enhanced telephony, messaging and
20 information services. However, the computing system may also be, for example, a desktop computer, a network computer, a midrange computer, a server system or a mainframe computer. Therefore, in general, the present invention is preferably executed in a computer system that
25 performs computing tasks such as manipulating data in storage that is accessible to the computer system. In addition, the computer system preferably includes at least one output device and at least one input device.

Referring now to the drawings, and in particular to
30 Fig. 1, there is depicted one embodiment of a computer

system with which the method, system, and program of the present invention may be advantageously utilized. Computer system 10 comprises a bus 22 or other communication device for communicating information within computer system 10, and 5 at least one processing device such as processor 12, coupled to bus 22 for processing information. Bus 22 preferably includes low-latency and high-latency paths that are connected by bridges and controlled within computer system 10 by multiple bus controllers.

10 Processor 12 may be a general-purpose processor such as IBM's PowerPC™ processor that, during normal operation, processes data under the control of operating system and application software stored in a dynamic storage device such as a random access memory (RAM) 14 and a static storage 15 device such as Read Only Memory (ROM) 16. The operating system preferably provides a graphical user interface (GUI) to the user. In a preferred embodiment, application software contains machine executable instructions that when executed on processor 12 carry out the operations depicted 20 in the flowcharts described herein. Alternatively, the steps of the present invention might be performed by specific hardware components that contain hardwire logic for performing the steps, or by any combination of programmed computer components and custom hardware components.

25 Further, multiple peripheral components may be added to computer system 10. For example, a display 24 is also attached to bus 22 for providing visual, tactile or other graphical representation formats. Audio output through a speaker or other audio projection device may be controlled 30 by audio output device 28 attached to bus 22. A keyboard 26

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and cursor control device 30, such as a mouse, track ball, or cursor direction keys, are coupled to bus 22 as interfaces for user inputs to computer system 10. It should be understood that keyboard 26 and cursor control device 30
5 are examples of multiple types of input devices that may be utilized in the present invention. In alternate embodiments of the present invention, additional input and output peripheral components may be added.

The present invention may be provided as a computer
10 program product, included on a machine-readable medium having stored thereon the machine executable instructions used to program computer system 10 to perform a process according to the present invention. The term "machine-readable-medium" as used herein includes any medium
15 that participates in providing instructions to processor 12 or other components of computer system 10 for execution. Such a medium may take many forms including, but not limited to, nonvolatile media, volatile media, and transmission media. Common forms of nonvolatile media include, for
20 example, a floppy disk, a flexible disk, a hard disk, magnetic tape or any other magnetic medium, a compact disc ROM (CD-ROM), a digital video disc-ROM (DVD-ROM) or any other optical medium, punch cards or any other physical medium with patterns of holes, a programmable ROM (PROM), an
25 erasable PROM (EPROM), electrically EPROM (EEPROM), a flash memory, any other memory chip or cartridge, or any other medium from which computer system 10 can read and which is suitable for storing instructions. In the present embodiment, an example of nonvolatile media is storage
30 device 18. Volatile media includes dynamic memory such as

100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700 4800 4900 5000 5100 5200 5300 5400 5500 5600 5700 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6900 7000 7100 7200 7300 7400 7500 7600 7700 7800 7900 8000 8100 8200 8300 8400 8500 8600 8700 8800 8900 9000 9100 9200 9300 9400 9500 9600 9700 9800 9900 10000 10100 10200 10300 10400 10500 10600 10700 10800 10900 11000 11100 11200 11300 11400 11500 11600 11700 11800 11900 12000 12100 12200 12300 12400 12500 12600 12700 12800 12900 13000 13100 13200 13300 13400 13500 13600 13700 13800 13900 14000 14100 14200 14300 14400 14500 14600 14700 14800 14900 15000 15100 15200 15300 15400 15500 15600 15700 15800 15900 16000 16100 16200 16300 16400 16500 16600 16700 16800 16900 17000 17100 17200 17300 17400 17500 17600 17700 17800 17900 18000 18100 18200 18300 18400 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RAM 14. Transmission media includes coaxial cables, copper wire or fiber optics, including the wires that comprise bus 22. Transmission media can also take the form of acoustic or light waves, such as those generated during radio wave or 5 infrared data communications.

Moreover, the present invention may be downloaded as a computer program product, wherein the program instructions may be transferred from a remote computer such as server 39 to requesting computer system 10 by way of data signals

10 embodied in a carrier wave or other propagation medium via a network link 34 (e.g., a modem or network connection) to a communications interface 32 coupled to bus 22.

Communications interface 32 provides a two-way data communications coupling to network link 34 that may be

15 connected, for example, to a local area network (LAN), wide area network (WAN), or as depicted herein, directly to an Internet Service Provider (ISP) 37. In particular, network link 34 may provide wired and/or wireless network communications to one or more networks.

20 ISP 37 in turn provides data communication services through the Internet 38 or other network. Internet 38 may refer to the worldwide collection of networks and gateways that use a particular protocol, such as Transmission Control Protocol (TCP) and Internet Protocol (IP), to communicate 25 with one another. ISP 37 and Internet 38 both use electrical, electromagnetic, or optical signals that carry digital or analog data streams. The signals through the various networks and the signals on network link 34 and through communications interface 32, which carry the digital

or analog data to and from computer system 10, are exemplary forms of carrier waves transporting the information.

A bartering protocol system of a preferred embodiment 5 of the invention has a specification of a needs list and an availability list for each of its members, i.e., users. The needs list specifies the items that the user would like to acquire. The availability list specifies the items that the user is willing to make available to others for barter, 10 trade, or purchase, especially in conjunction with acquiring an item on the needs list. In a preferred embodiment, the needs list includes a user specified priority for each item, or group of items. The priority indicates the level of desire or need that the user has in acquiring the item(s). 15 A match is found, based on the specified priority, for one or more items on the needs list with items available for trade or sell as specified on the availability lists of others.

The system, method, and program of this invention 20 provides a barter protocol language that incorporates elements that are unique to bartering. One such element includes specifying the equivalence or near equivalence of items. For example, if a user wishes to acquire a round table that seats twelve (12) people, and the user finds a 25 round table that seats twelve, the two items would be considered equivalent. However, if the user could not find such a round table that seats twelve people, the user may be willing to consider a rectangular table that seats 14 people. This rectangular table may be considered a near 30 equivalent. Although the end user may consider a

rectangular table that only seats ten people, this type of table would have a lower priority than the other equivalent table and near equivalent table previously described.

The protocol language specifies equivalence and near equivalency between items that are desired to be bought and sold that will be satisfactory to the end user. The protocol language enables a user to specify the types of items that will suffice for, or be accepted in lieu of, another item.

10 Figs. 2A-2G represent an example of an XML barter protocol language that has its own corresponding document type definition (DTD) which may be unique to a particular barter club.

Figs. 2A-2D illustrate a barter protocol language that 15 represents a user's availability list and a needs list. More specifically, as an example, a computer programming service is being bartered for an antique dining table. In this example, depending upon the dining room table manufacturer, the user would settle for a more exquisite or 20 lesser value table. Note that if the user's first choice is not available, the user would be willing to settle for a combination of multiple items. In the needs list 202 of Figs. 2B-2D, the choices are represented in one way of a preferred embodiment.

25 In Fig. 2A, a computer programming service 216 of wireless device programming 217 is being listed as a first item 215 under a service item 214 of items 213 that the customer 211 is offering 212 or making available under the customer's availability list 201 as the item 217 that the 30 customer wants to use to trade or barter with in order to

acquire other items on the customer's needs list. Items 213 can be physical or nonphysical items. In this example, item 213 is a nonphysical item, i.e., a service. The service item 214 indicates a service to be provided, instead of a 5 physical item, for trade. Such services can be monetarily very valuable. The bartering protocol pulls in the appropriate document type definitions (DTDs) 218 that further specifies the service being offered. It is expected that each category (e.g., a skilled programming category 10 under a service item) will have its domain specific DTD representation to unambiguously quantify and interpret the attributes characteristic of its domain. In this example, the skill level 219 being offered is rated as high, the number of hours 220 being offered is forty (40) hours, and 15 the monetary value 221 is specified at 2000 US dollars.

In Fig. 2B, a needs list 202 is shown that specifies the customer's first choice 225 and second choice 226 for acquiring products or services under the user's needs 222. The choices 225, 226 can comprise multiple items. In this 20 example, the customer's first choice 225 is to acquire items 1 and 4. If this is not possible, the customer would be willing to settle for the second choice 226 comprising of items 2 and 3 and 4. The bartering protocol language then specifies the first item 227 with a designated priority 228. 25 The type of item 229 and its description are then specified. In this case a product item (furniture) is being described with its own specific attributes. A monetary value 231 is associated with the specified item.

In Fig. 2C, the second item 237 is specified with its 30 own priority 238 and its description 239. A monetary value

241 is associated with the specified item. The third item
247 is specified as a service item 246 as compared with the
previous items that were specified as product items. The
service item is assigned its own priority 248 and
5 description 249. A monetary value 251 is associated with
the specified service item 247.

In Fig. 2D, the fourth item 257, which is part of both
the first choice 225 and the second choice 226 of Fig. 2B,
is specified as a product item 256 having a "must have" or
10 one (1) rated priority 258. The merchandise is further
specified 259 along with an associated monetary value 261.

As described above, the barter protocol language
enables a specification of a needs list and an availability
list. In a preferred embodiment both groups of items,
15 referred to herein as choices, and individual items can be
specified with a priority to indicate a level of need that a
user has in acquiring the item(s). Furthermore,
equivalency amongst dissimilar items in the needs list and
availability list can be specified. For example,
20 equivalency of dissimilar items amongst the availability
list and the needs list is shown with respect to programming
services 216, Fig. 2A, as indicated by monetary value 221,
and a combination of dissimilar items in either choice 1 or
choice 2 through the respective monetary values as shown in
25 Figs. 2B-2D. As such, the bartering system of the present
invention will attempt to find a match in terms of
equivalency with what the user has available to sell with
what the user wants to buy. That is, the barter protocol
language enables a user to specify the types of one or more
30 available items that can be used in consideration for one or

more needed items even if the available items and needed items are dissimilar in kind and quantity.

Furthermore, near equivalency amongst non-identical individual items, or groups of items, i.e., choices, within 5 a given availability list or a given needs list can be specified. More specifically, choice 2, i.e., the combination of items 2, 3, and 4 are indicated as being near equivalent to choice 1, i.e., the combination of items 1 and 4. The near equivalence is indicated by the combination of 10 items within each choice, the combined monetary value assigned to each individual item, and more importantly, the priority assigned to the choice. Although the combined monetary values are equivalent, the difference in priority indicates that, from the user's perspective, the choices are 15 near equivalent and not exactly equivalent. The lower priority choice would be accepted as being equivalent only if a match for the higher priority choice could not be found.

Furthermore, the protocol language addresses the 20 situation where different bartering systems have different notions of specifications. For example, Bartering Club A may have one way of specifying equivalent items, requirements, and availability of items; while Barter Club B has a different way of specifying these. A member of Barter 25 Club A may have already specified items corresponding to the member's needs in the protocol language of Barter Club A. However, if that same member wants to interact with Barter club B, such as by seeing if the member's needed items are available through Barter Club B; the member must utilize a 30 different protocol language. As such, a bridge that enables

a translation of the requirements in Barter Club A to the requirements of Barter Club B, such that there is a clear and unambiguous specification of the member's needs even in the language of Barter Club B is provided. The needs

5 requirements would thus be understood by both Barter Club A and Barter Club B in order for items in Barter Club B to satisfy the needs of a member of Barter Club A. The inter-translation between differing protocols of various Barter Clubs enables cross-bartering across different
10 bartering systems.

In Figs. 2E-2G, the needs list 202 of Figs. 2B-2D is represented differently. This illustrates another feature of the present invention. That is, translating the specification into different formats when bartering across
15 bartering domains. This situation may arise, for example, when bartering is done across country boundaries or across different bartering organizations, which may adhere to different representations of the same items.

As shown in Fig. 2E, the choices, the first choice 265
20 (Fig. 2E) and the second choice 281 (Fig. 2F) themselves, are given a priority 266, 282 respectively instead of prioritizing the individual items that make up those choices as shown in Figs. 2B-2D. As shown in Figs. 2E-2G, the choices then comprise the items that make up those choices.
25 For example, as shown in Fig. 2E, the first choice 265 comprises the dining table 268 as described, and having monetary value 269, and the sports cards 278 having monetary value 279 as specified. As shown in Figs. 2F and 2G, the second choice 281 comprises three different items 283, 288,
30 290. These items comprise dining table 283 having a

specified monetary value 284, landscaping service 288 having a specified monetary value 289, and sports cards 290 having a specified monetary value 291.

Fig. 3 is a flow diagram of the process and logic

- 5 utilized in specifying an availability list and a needs list in accordance with a preferred embodiment of the invention. First, a user pulls up a graphical user interface (GUI) 301, and specifies whether the user is specifying items for a needs list or items for an offer or availability list 302.
- 10 For each needs and availability list, the user selects the category as either service or merchandise 303, accordingly. Based upon the previous selection, the user specifies the characteristics for each service or merchandise item specified, 304. A possible monetary value is also specified
- 15 305 for each item. One embodiment of the invention may utilize an appraisal engine that performs the monetary value specification automatically or is utilized by the user as a tool. The appraisal engine may use various references for consultation such as blue book values, manufacturer list
- 20 prices in catalogs, etc. A rating agency may make the values for various described items available to a user or to the bartering system through online connections to the rating agency or through an accessible database of items and values. The monetary value may also be specified according
- 25 to the user's own appraisal. In a preferred embodiment, if no value is given by the user, the bartering system automatically assigns a common value through an acceptable rating agency, e.g., a blue book value.

The user then gives the described item a prioritization

- 30 306. In a preferred embodiment, the prioritization is

indicated by a ranking such as 1, 2, 3, or 4. The prioritization indicates the level of desire that a user has in acquiring an item on the needs list. In other embodiments, prioritization may also be used to indicate the 5 level of desire the user has in parting with an item on the user's availability list. Besides indicating priority by a ranking, priority can also be established through a user assessed value of the item. As such, the prioritization may represent what the user is willing to sell an item on the 10 availability list for, or how important a particular item on the needs list is to the user. For example, if the user assessed value on the needs list is greater than the "appraised value", then the item would be determined to be of high priority since the user is indicating that the user 15 is willing to pay a higher price to acquire it. On the other hand, if the user assessed value on the needs list is less than the "appraised value", then the item would be determined to be of a lower priority since the user is indicating that the user will only pay a lower price to 20 acquire it. Likewise, a high user assessed value for an item on the user's availability list indicates that the item has a low priority on the user's availability list since the user will only trade or sell that item if the user receives higher than usual value for it. Likewise, a low user 25 assessed value for an item on the user's availability list indicates that the item has a high priority on the user's availability list since the user is willing to off load the item for lower than usual value.

It should also be noted that in a preferred embodiment 30 a priority field for the monetary value tag is utilized to

create a monetary value priority indication. The priority field with the monetary value priority indication indicates how flexible the user is with regard to price. For example, if a user is looking for an item and is not willing to
5 negotiate on the price, the user will specify this value to be 1. If the user is a little flexible on price, the value in the field may be a 2, and so forth. In another embodiment, if the user has no flexibility, the indicator may have a value of zero (0). If the user is willing to be
10 flexible within 10% of the indicated price or monetary value, then the monetary value priority indicator may be 10 or some other value to represent 10% flexibility, etc.

Fig. 4 is a flow diagram of the process and logic utilized in finding a match, if at all, for items in a user
15 specified availability list and a user specified needs list in accordance with a preferred embodiment of the invention. The user specifies an offer list, i.e., an availability list, 401, and a needs list, 402. The system of the present invention then constructs an internal bartering protocol
20 language, e.g., XML, of the needs list and availability list 403.

When complete, or when indicated by the user to do so, the system starts looking for a match, 404. The system looks up the user's availability list and needs list and
25 determines a priority of the choices and or a priority of individual items in the lists. The system searches the availability lists of others to determine if an item on another availability list matches an item on this user's needs list beginning with the higher priority indicated
30 need. Likewise, the system searches the needs lists of

others to determine if an item on another needs list matches an item on this user's availability list. If there is a direct match, or one offer matches a combination of needs, or one need matches a combination of offers, a direct match
5 has been found. If a direct match has not been found, a chain of offers and corresponding needs is constructed that satisfies these offers. Thus, the matching may not be a direct one-to-one corresponding match. For example, a match
10 may indicate that user A desires an item that is listed under user B's availability list; user B desires an item that is listed under user C's availability list; and user C desires an item that is listed under user A's availability list.

In a preferred embodiment of the invention, the
15 bartering system will attempt to match the higher priority items before attempting to find a match for the lower priority items. In other embodiments, all of the matching is performed at the same time. The results, however, are presented to the user such that the results for the higher
20 priority items are presented first. Every matching attempt will be made for the higher priority items regardless of whether the matching effort results in direct matching, chaining, or utilizing cross domain searching and matching.

25 As such, during the matching process, the process first tries to perform the matching within its own bartering domain, i.e., the system looks first for an intra domain match, 405. If there is such an intra domain match, the system shows the user the offers found that match the user's
30 needs list, and the needs of others that match the user's

availability list, 411. The system then queries the user through a GUI whether or not the user agrees to the found match, 412. If the user indicates agreement or approval, the bartering transaction takes place, 413. If the user 5 indicates that the user does not want to accept the found match, the system keeps searching for a match within that domain, 414, unless an indication is received from the user through the GUI to stop searching. If the user does not indicate that searching should stop, then the searching 10 continues from step 414 to step 404.

If the intra-domain searching is exhausted without a further match, 405, then an inter domain matching process is instituted 406. For different bartering systems, the representations of the needs list and the availability list 15 may be different. The system either constructs a common XML representation of the needs list and availability list with the item priorities, or the system converts the user's needs list and availability list to the other system's format, 407. Searching continues across other bartering domains, 20 408. If there is no match, then the system goes to a next bartering domain to search, 410.

If there is a complete match, processing continues by showing the user the offer, 411. Processing continues as previously described with respect to steps 412-414. If 25 there is a partial match, that is, some items are found either matching the needs list or the availability list, then the partial match results are saved while other domains are searched as described below. Once a complete match is found across multiple bartering domains, then the saved 30 results are displayed to the user and processing continues

as shown in steps 411-414. Otherwise, in other embodiments, each partial match is displayed to the user as processing continues as shown in steps 411-414.

- A match between a needs list and other offer lists will
- 5 result if i) there is a finding of some offer that satisfies the current needs - offer lists; or ii) the user foregoes one or more needs; or iii) the user includes money or barter dollars. When the needs list is matched by one or more items on an offer list, then the matching process is done.
- 10 All of the users in the matching process are notified. If they all agree, the bartering transaction is completed. Otherwise, if they do not all agree, further matching is attempted.

Any further matching may require finding a match for

15 near equivalence in items. For example, a user can specify a need such as "I want a baseball card of a member of a 1934 Yankee team." The bartering system generates the corresponding bartering protocol language such as in XML. The bartering system is also enabled to barter or find

20 matches across differing bartering systems where the representations of the needs and offers are different. If the bartering system does not find a match for the 1934 team, the system may find a match for a 1936 team. The bartering system does an analysis to appropriately

25 prioritize the found near equivalent match and assigns a barter value.

As such, the bartering system of the present invention attempts to match a user's needs list and availability list of the offers that the user has made with the availability

30 of products and services and the needs of other users. The

matching is performed based on the priority of the items and/or choices.

The foregoing description of the preferred embodiments of the invention has been presented for the purposes of 5 illustration and description. It is not intended to be exhaustive or to limit the invention to the precise form disclosed. Many modification and variations are possible in light of the above teaching. For example, although preferred embodiments of the invention have been described 10 in terms of the Internet, other network environments including but not limited to wide area networks, intranets, and dial up connectivity systems using any network protocol that provides basic data transfer mechanisms may be used.

15 It is intended that the scope of the invention be limited not by this detailed description, but rather by the claims appended hereto. The above specification, examples and data provide a complete description of the manufacture and use of the system, method, and article of manufacture, 20 i.e., computer program product, of the invention. Since many embodiments of the invention can be made without departing from the spirit and scope of the invention, the invention resides in the claims hereinafter appended.

Having thus described the invention, what we claim as 25 new and desire to secure by Letters Patent is set forth in the following claims.